

FIVE ADDITIONS TO THE GENUS *ACOURTIA* (ASTERACEAE: MUTISIEAE)

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ABSTRACT

Revisionary studies of *Acourtia* have resulted in the discovery of five new species, *A. oaxacana*, *A. mexiae*, *A. pulchella*, *A. gentryi*, and *A. gracilis*. All the new taxa are endemic to Mexico. The new species are described and their morphological affinities to other species of the genus discussed.

RESUMEN

Durante la revisión del género *Acourtia* que actualmente se está llevando a cabo, se descubrieron cinco nuevas especies, *A. oaxacana*, *A. mexiae*, *A. pulchella*, *A. gentryi*, y *A. gracilis*, todas ellas endémicas de México. Estos taxa se describen y se discuten sus afinidades morfológicas con otras especies del género.

During the course of revisionary studies of *Acourtia*, five new species were identified among herbarium collections. With these additions, the number of currently recognized species within the genus totals 65. All the species described herein are endemic to Mexico where the majority of the species of *Acourtia* are encountered. The large number of species recently described (15 since 1982) may indicate that other species still remain to be discovered within poorly explored areas of Mexico. *Acourtia*, with most of its species endemic to Mexico, is the most specious genus of the subtribe Nassauviinae in North America.

Bacigalupi (1931) revised *Acourtia* as a section of *Perezia*, recognizing 44 species. The number of collections since then has increased and a better understanding of the genus has been obtained. The generic boundaries of *Acourtia* are in the process of being redefined (Cabrera, in prep.). Some species within the genus are also in need of a redefinition and therefore some will be placed in synonymy, while other species will need to be segregated.

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Fig. 1. *Acourtia oaxacana*. Floral branch. Bar equals 1 cm.

***Acourtia oaxacana* L. Cabrera, sp. nov. (Fig. 1)**

Acourtiae carpholepidi (A. Gray) Reveal & King similis capitulescentia cymulis capitula 2-4 efferentibus, involucris campanulatis, et apicibus phyllariorum obtusis vel rotundatis; differt involucris longioribus (1.2-1.4 cm longis), phyllariis in seriebus 7-8, et capitulis flosculos 24 efferentibus.

Erect perennial herb ca. 2 m tall; stems green to dark-purple, striate, puberulent to glabrous. Leaves cauline, sessile, the lowermost oblong, lanceolate or ovate-oblong, 4-20 cm long, 2-7 cm wide, progressively decreasing in size towards the inflorescence, basally auriculate, clasping to amplexicaul, shortly apiculate to gradually acuminate at the apex, spinulose dentate at the margins, semicoriaceous, with a crispy-articulated pubescence on the veins of both surfaces, prominently resinous glandular-dotted below, prominently veined, more so on the lower surface. Inflorescence paniculate; heads solitary at the end of the branchlets or in cymules of 2-4, 1.6-2 cm high at maturity; peduncles 3-13 mm long, densely pubescent; involucre narrowly campanulate, 1.2-1.4 cm high; phyllaries 55-60, in 7-8 graduated series, dark purple on their exposed surface, rounded to obtuse at the apex and frequently inconspicuously mucronulate, with the margins ciliate and scarious more widely so on the overlapping portion; outer phyllaries ovate to very broadly ovate, 3-4 mm long and wide; middle phyllaries obovate, 5-7 mm tall, 3-3.5 mm wide; inner phyllaries oblanceolate, 9-10 mm high, ca. 2 mm wide; receptacle scrobiculate, puberulent with scatter glandular-dotted and articulated hairs. Florets ca. 24 per head; corollas pink, abaxially glandular-puberulent, 11-12 mm long including the 4-5 mm long outer tridentate lobe, with the inner two lobes slightly shorter; anthers ca. 7 mm long, including the 2 mm tail and the lilac 2 mm sterile apex; style and branches lilac, ca. 11 mm long including the ca. 1 mm long branches. Achenes cylindric to fusiform, ca. 7 mm long, resinous glandular-stipitate; pappus 9-10 mm long with white biseriate bristles.

Known only from the type collection.

Type: MEXICO. Oaxaca: 62 km al SE de Oaxaca, sobre la carretera a Tehuantepec, 15 Oct 1991, *J. Panero & A. Salinas 2495* (Holotype: MEXU!; isotype: US!).

Acourtia oaxacana shares with *A. carpholepis* several morphological characteristics, especially with those collections from Chiapas. Both species normally have inflorescences arranged in cymules of 2-4 heads, although in *A. oaxacana* solitary heads arising at the end of the branchlets are also present. The phyllaries of both species are rounded to obtuse at the apices. *Acourtia oaxacana* can be readily distinguished from *A. carpholepis* by head characteristics. In *A. oaxacana* the heads have ca. 24 florets, the involucre is 1.2-1.4 cm high, and the phyllaries are in 7-8 series, whereas in *A. carpholepis* the heads have 6-13 florets, the involucre is up to 11 mm high, and the phyllaries are in 4-5 series.

***Acourtia mexiae* L. Cabrera sp. nov.**

Herbae perennes; folia paginis inferis puberulis; involucria cylindrica vel anguste campanulata; phyllaria 24-28, ad apices obtusa; quodque capitulum flosculos 9-11 efferens, corollae 11.0-12.5 mm longae; achenia linearia 4.0-5.5 mm longa hispidula stipitata-glandulosaque.

Perennial herbs up to 3.5 m tall; stems green to dark purple, striate, puberulent in the younger branches. Leaves sessile, the main ones oblong, lance-elliptic to ovate-elliptic, 14-22 cm long, 5-12 cm wide, decreasing in size towards the inflorescence, those associated with the inflorescence 2.5-14 cm long, 1-6 cm wide, all basally auriculate-clasping, apiculate to rounded at the apex, coarsely dentate to denticulate at the margins, chartaceous to semicoriaceous, puberulent on the veins of both surfaces. Heads usually in groups of 2-4, arising from the axils of the leaves and forming loose umbelliform cymes; peduncles filiform, 1-2 cm long, bearing lanceolate bracteoles up to 2 mm long, puberulent; involucre cylindric to narrowly campanulate, 1-1.2 cm high; phyllaries 24-28, graduated in 4-6 series, dark-purple on their exposed surface, obtuse at the apex, ciliate at the margins; outer phyllaries ovate to oblong-ovate, 1.5-4.5 mm high, 1.5-2.5 mm wide, frequently grading into the peduncular bracteoles; middle phyllaries oblanceolate to oblong, 4-7.5 mm long, 1.8-2.2 mm wide; inner phyllaries oblong to oblanceolate, 7.5-10 mm long, 1.5-2.3 mm wide; receptacle scrobiculate, glandular-puberulent. Florets 9-11 per head; corollas whitish to dark red or dark maroon, sparsely glandular abaxially, 11-12.5 mm long, including the 5.5 mm long outer tridentate lobe, with the inner two lobes slightly shorter; anthers 7 mm long, including the ca. 2 mm long tails and the 1.5-2 mm long sterile pink apex; style and branches ca. 7 mm long, including the ca. 1 mm long branches. Achenes 4-5.5 mm long, linear, stipitate-glandular and hispidulous; pappus ca. 10 mm long, biseriate.

Type: MEXICO. Jalisco: Real Alto; trail to El Tajo de Santiago, densely wooded, damp, N slope, 2500 m, 23 Feb 1927, Y. *Mexia* 1749 (Holotype: GH!; isotypes: BM!, FI, GH!, MICH!, NY!, US!).

Additional collection examined: MEXICO. Jalisco: Real Alto, trail to La Bufa, Sierra Madre, rocky slope, on dead wood, 2500 m, 2 Feb 1927, Y. *Mexia* 1623 (GH, US).

Specimens here referred to *A. mexiae* have been considered by Bacigalupi (1931) and McVaugh (1984) as *Perezia patens* A. Gray (= *A. patens* (A. Gray) Reveal & King). Recent collections of *A. patens* and careful analysis of Seemann's collections at Kew, (which include the type of *A. patens*) confirm the distinctiveness of *A. mexiae*. As noted by McVaugh (1984), differences between these species include the number of florets per head and phyllaries. The two species can be distinguished by several head and leaf characteristics. *A. mexiae* has 9-11 florets per head, the corolla is 11-12.5 mm long, the number of involucral bracts ranges from 24-28, the involucre is cylindric to narrowly campanulate, the peduncles and lower surface of the leaves are puberulent, and the achenes are stipitate-glandular and hispidulous. In contrast, *A. patens* has 17-22 florets per head, the corollas are 12.5-13.5 mm long, the involucral bracts are 35-40 per head, the involucre is campanulate, the peduncles and lower surface of the leaves are glabrous, and the achenes are hispidulous.

Acourtia hooveri (McVaugh) Reveal & King, can be confused with *A. mexiae* but as noted by McVaugh (1984), in *A. hooveri* the number of involucral bracts is ca. 20, the middle phyllaries are much narrower (2-2.5 mm) and are rounded or abruptly acuminate at the tips. In addition *A. hooveri* differs from *A. mexiae* in having the phyllaries arranged in 3-4 loosely imbricated series with the innermost acutish at the apex, in the achenes with glandular-stipitate pubescence, and in the obconic to campanulate involucre.

The species name honors Ynes Mexia, one of the most prominent women collectors (Myers, 1991), whose collections substantially increased our knowledge of the Flora of western Mexico.

***Acourtia pulchella* L. Cabrera, sp. nov. (Fig. 2)**

A. wislizeni (A. Gray) Reveal & King similis foliis coriaceis glabrisque, capitulis campanulatis vel turbinati-campanulatis, venatione prominenti in bracteis pedunculorum et in phyllariis externis, sed differt capitulescentiis corymbosis, capitulis minoribus flosculis paucioribus brevioribusque.

Erect perennial herbs, up to 1.5 m tall; stems striate, green to dark purple, glabrous. Leaves sessile, the lowermost obovate-oblong, spatulate, 6.5-18 cm long, 1.5-6 cm wide, coarsely spinulose-dentate, callose-ciliolate between the teeth, auriculate-clasping or sagittate basally, acute at the short-apiculate apex, coriaceous, rigid, glabrous on both surfaces, upper leaves progressively reduced in size towards the inflorescence, oblong-obovate to ovate-lanceolate or narrowly elliptic, 1.5-5.5 cm long, 0.5-2 cm wide, frequently conduplicate, remotely spinulous-denticulate to entire, rounded to truncate at the base, acute to rounded at the small apiculate apex, glabrous. Inflorescence a corymbiform compound cyme; heads 2.5-3 cm high, on peduncles 1-6.5 cm long; peduncles glabrous, with the upper part covered by imbricate, leafy, and prominently veined bracteoles; bracteoles obovate to ovate-elliptic, entire marginally, coriaceous, glabrous, grading into the phyllaries; involucre campanulate to turbinate campanulate, 1.8-2 cm high; phyllaries ca. 37, red-purple on the exposed surface, minutely glandular marginally, in 5-6 series; outermost phyllaries ovate, 2.5-3.5 mm wide, obtuse and abruptly mucronate at the apex, prominently veined; innermost phyllaries oblanceolate, 1.5-2 mm wide, with scarious, glandular-ciliolate margins, acute and mucronate apically; receptacle foveolate, glandular-puberulent. Florets 25-30 per head; corollas pink-lavender, bilabiate, scatterly glandular-puberulent on the abaxial surface, 1.5-1.6 cm long, including the 6.5 mm long outer tridentate lobe, with the inner two lobes of the same length or slightly smaller; anthers 9-9.5 mm long, including the ca. 2.5 mm sterile apex and the 2-2.5 mm long tails; style red brown to cream-colored, 10-11.5 mm long, including the purple, truncate, papillose, 1-1.2 mm long branches, with the papillae red-purple. Achenes subcylindric, 4-7.5 mm long, densely stipitate-glandular, with scattered hispidulous hairs; pappus 1.2-1.4 cm long, with the bristles in two series.

Known only from the type collection.

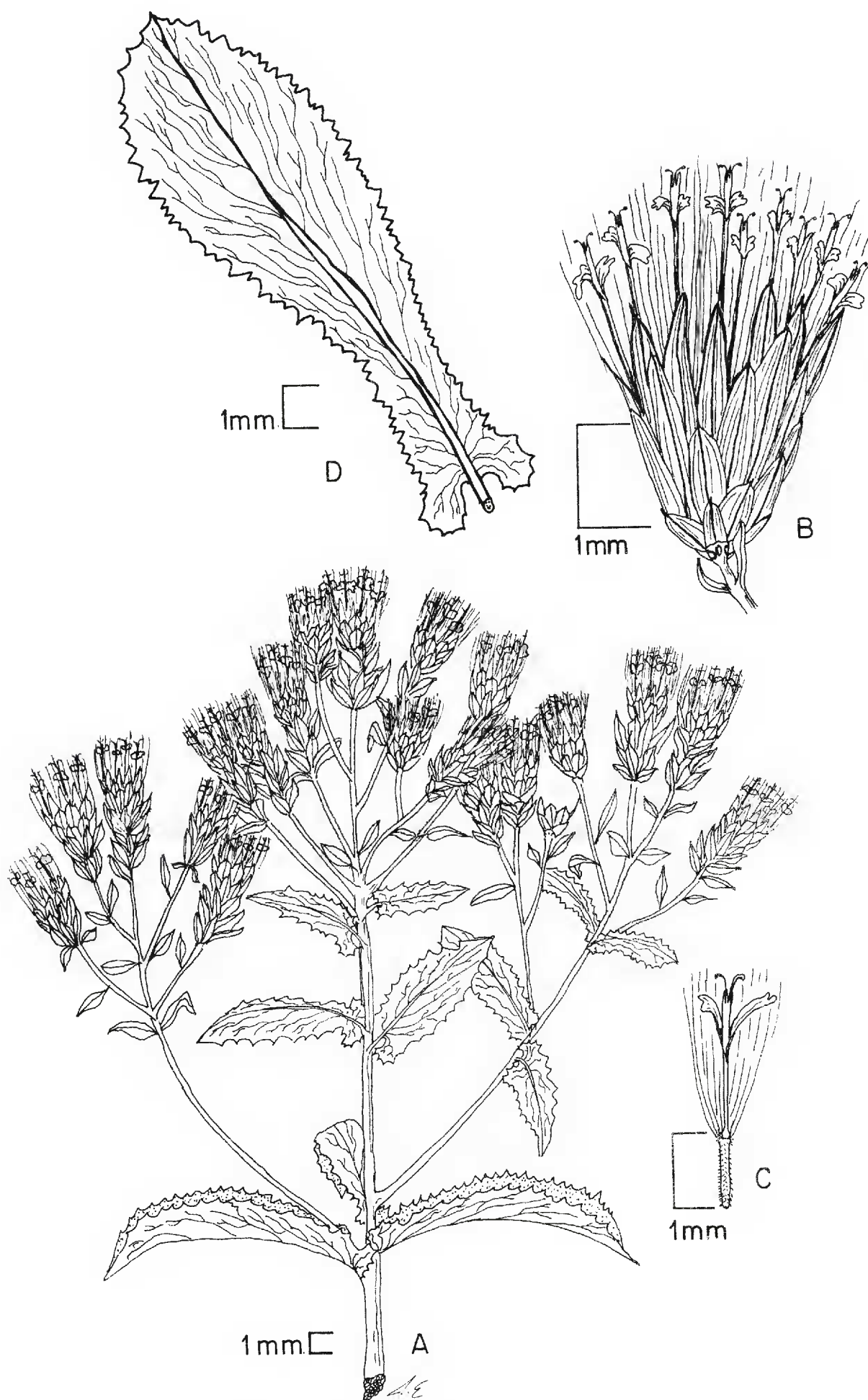


Fig. 2. *Acourtia pulchella*. A. Habit; B. Head; C. Florets; D. Basal leaf.

Type: MEXICO. Aguascalientes: 3 km al E de La Congoja, sobre el camino a San José de Gracia; matorral de *Dodonaea* y *Arctostaphylos* con manchones de bosque de *Quercus*, 2350 m, 19 Oct 1973, J. Rzedowski y R. McVaugh 897 (Holotype: MICH!).

Acourtia pulchella shares with *A. wislizeni* a campanulate to turbinate-campanulate involucre, prominent venation of the peduncular bracts and outer phyllaries, and coriaceous and glabrous leaves. *Acourtia pulchella* differs from *A. wislizeni* in having the leaves with a strong tendency to be conduplicate, the inflorescence is a compound, corymbiform cyme (versus a solitary terminal head or a cyme), ca. 30 florets per head (versus 50-270), and the heads and florets are substantially smaller than in *A. wislizeni* (1.7-2 cm high versus 3-5 cm).

***Acourtia gentryi* L. Cabrera, sp. nov.**

Acourtiae palmeri (S. Wats.) Reveal & King similis sed differt foliis oblongis raro ovati-ellipticis ad apices acutis breviter apiculatisque, capitulescentia paniculata cymulis capitula 2-3 efferentibus (capitulis raro in pedunculis fasciculatis axillis foliorum), involucris turbinati-campanulatis, et phyllariis induratis.

Perennial plants up to 2 m tall; stems green to dark-purple, striate, crispy-pubescent, with a tuft of wooly brown hairs on the leaf axils. Leaves sessile, scabrous, with the main blades oblong, rarely ovate-elliptic, narrower towards the base, 6-28 cm long, 2.5-9.5 (11) cm wide, decreasing in size towards the inflorescence, basally auriculate-amplexicaul to cordate-clasping, acute and shortly apiculate, less frequently obtuse at the apex, spinulose dentate marginally, rarely denticulate, glandular dotted and crispy pubescent on the lower surface. Inflorescences terminal or lateral; heads in cymules of 2-3, 1.7-1.9 mm long, on peduncles arising from the leaf axils and forming a lax or sometimes crowded panicle at the end of the branches, rarely the peduncles fasciculated in the leaf axils; peduncles 0.4-2.5 cm long, crispy-pubescent and glandular-dotted, with a few linear to lanceolate bracteoles, 2-7 mm long; involucre turbinate-campanulate, 11-13 mm high, 6-10 mm wide; phyllaries in 5-6 imbricate series, 33-38, indurate, dorsally glandular-pubescent to glabrate, sericeo-ciliate; outer phyllaries 2.4-4 mm long, 0.7-1.2 mm wide, lanceolate to ovate-lanceolate, gradually acuminate; middle phyllaries 4.5-7 mm long, 1-1.6 mm wide, oblong to lanceolate, gradually to abruptly acuminate; inner phyllaries 9-12 mm long, 0.9-1.8 mm wide, oblanceolate to oblong, gradually acuminate; receptacle glandular-puberulent and with setose hairs up to 0.5 mm long. Florets 17-19 per head; corollas lavender, abaxially puberulent, 13-14.5 mm long, including the 3-dentate, 4 mm long lobe and the two innermost slightly shorter; stamens ca. 8 mm long, with the anthers ca. 4 mm long and the terminal and apical sterile appendages ca. 2 mm long each; style and branches 1-1.2 cm long. Achenes fusiform to linear-fusiform, 5-6.5 mm long, hispidulous; pappus 9-11 mm long with cream bristles in 1-2 series.

Type: MEXICO. Sinaloa: Above la Jolla, Sierra Surotato, pine-oak zone, canyons, steep moist shady bank, 1520-1830 m, 17-24 Mar 1945, H. S. Gentry 7258 (Holotype: ARIZ!, isotypes: FI, GH!, MICH!, NY!, US!).

Additional collections examined: MEXICO. Sinaloa: Los Pucheros, Sierra Surotato, pine-oak-madroño, openly forested slope, canyon bottom, 1670-1980 m, 17-24 Mar 1945, *H. S. Gentry* 7199 (ARIZ, F, GH, MICH, NY, US); Puerto a Tamiapa, steep brushy slope under oaks, 1380 m, 6-8 Mar 1940, *H. S. Gentry* 5832a (ARIZ).

Acourtia gentryi shares with *A. palmeri* (S. Wats.) Reveal & King several characteristics such as the shape and indument of the phyllaries. Differences between both species include the following: *Acourtia palmeri* has a widely campanulate involucre, the phyllaries are not indurate, the leaves are ovate to oblong-lanceolate and attenuate-acuminate and the inflorescence is longely diffuse along the flowering branches. In contrast, *A. gentryi* has a turbinate-campanulate involucre, the phyllaries are indurate, the leaves are not attenuate-acuminate and the inflorescence is more compact, not diffuse and may present fasciculate peduncles.

The name of this species honors Howard Scott Gentry whose extensive collections and work in the state of Sinaloa have resulted in a better understanding of the floristic richness of this state and of western Mexico in general.

***Acourtia gracilis* L. Cabrera, sp. nov.**

Herbae scaposae; folia membranacea tota basalia; capitulescentia paniculati-cymosa, profuse ramosa in partibus distalibus; pedunculi filiformes; involucre campanulata; phyllaria obtusa ad apices; flosculi ca. 20.

Scapose perennial herb ca. 45 cm tall; rhizome ca. 1.5 cm wide, covered by cream-brown wooly trichomes. Leaves basal, decurrent along the petiole, membranaceous, oblong-elliptic in outline, up to ca. 30 cm long, ca. 12 cm wide, with long, white, silky hairs towards the base of the midvein, otherwise puberulent on both surfaces, basal third of leaf runcinately-pinnatifid, spinulose-dentate marginally; venation well defined. Scapes ca. 4 per plant, each ca. 45 cm tall, taller than leaves, striate, mostly pilose at the base, the hairs smaller on distal parts. Heads pedunculate, ca. 1.1 cm long; inflorescence a profusely branched paniculiform cyme, with ca. 40 heads; peduncles 0.5-3.0 cm long, filiform, puberulent, bracteolate, with the bracteoles lanceolate to narrowly triangular, 3.5-10 mm long; involucre 0.7-0.8 mm high, campanulate, 3-seriate; phyllaries obtuse at the apex, dorsally glabrous, marginally ciliate; outer phyllaries ovate, 1.5-3 mm long, 0.8-0.9 mm wide, shortly and abruptly acuminate; inner phyllaries oblong to oblanceolate, 4.5-6 mm long, 1.1-1.3 mm wide; receptacle hirsute. Florets bilabiate, about 20, ca. 8 mm long; anthers ca. 1.8 mm long, filaments ca. 2 mm long, sterile apex ca. 1.5 mm long, tails ca. 1.5 mm long; style branches 7-8 mm long; achenes cylindric to fusiform, 1.5-2 mm long (immature), sparsely hispidulous; pappus white, biseriate.

Type: MEXICO. Puebla: Barranca de Patla, Villa Juárez, sobre roca húmeda, asoleada en orilla del arroyo de agua, 600 m, 6 Feb 1977, *E. Matuda* 38750 (holotype: MICH!).

Acourtia gracilis resembles *A. scaposa* (Blake) Turner and *A. moctezumae* Rzedowski & Calderón. The following key summarizes the differences between these species.

- 1. Florets ca. 20, involucre campanulate; phyllaries obtuse..... *A. gracilis*
- 1. Florets 5-10; involucre cylindric to turbinate; phyllaries acute
 - 2. Florets 5-7; inflorescence a diffusely paniculiform cyme; involucre cylindric to narrowly turbinate; achenes 3.5-5 mm long, hispidulous and stipitate glandular*A. scaposa*
 - 2. Florets 10; inflorescence a paniculiform thyrse; involucre turbinate; achenes ca. 8 mm long, hispidulous.....*A. moctezumae*

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